

means to physically connect the die to said substrate, wherein said means is electrically non-conductive; and

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a plurality of connectors corresponding in number to the number of leads, wherein said connectors electrically connect the die to said leads, wherein said leads are arranged as part of said substrate such that they pass under the die when the die is connected to said substrate, wherein the leads on the substrate terminate at points that correspond to a die-up orientation. —

Please add new claim 15, as follows:

-- Claim 15. (new) A package for electrically connecting to a chip having a die-down configuration, wherein the package with die-down chip provides electrical connections in a die-up configuration, the die-down attach package comprising:

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a substrate having a plurality of leads each defining a first end and a second end, the first ends for connecting to the die-down chip,

means for connecting the die-down die to said substrate, wherein said means is electrically non-conductive; and

a plurality of first connectors corresponding in number to the number of first ends, wherein said first connectors electrically connect the chip to the first ends of the leads, and wherein the second ends of the leads are arranged on the substrate such that they correspond to the die-up configuration. —

The claims 1, 2, 4, 5, 7, and-8 were rejected under 35 USC 102(b) over a U.S. patent to Suyama et al., no. 5731630 ('630). Claims 3 and 6 were rejected under 35 USC 103(a) citing the '630 patent and a U.S. patent to Akram, no. 6064116 ('116) for claim 3 and US publication by Wang, no. US 2001/0033017 ('017) for claim 6.

The present amendment adds a limitation to the independent claim 1 upon which all other claims except new claim 15 depend. This limitation requires that the configuration of the leads on the substrate convert the die-down pattern or configuration of electrical contacts to the pattern or configuration of electrical contacts of a die-up configured chip. So the substrate converts a die-down to a die-up electrical contact configuration.

Amended claim 1 recites this limitation as follows:

“...wherein the leads on the substrate terminate at points that correspond to a die-up orientation.”

The cited references do not suggest this re-configuration of the pattern of the electrical contact points.

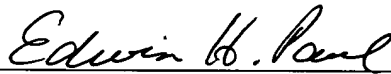
New claim 15 is a revision of claim 1, but containing a different version of the invention that is more specific to describing the re-orientation of the electrical contacts. Here the orientation, configuration pattern of the leads is explicitly limited to the conversion of a die-down pattern to a die-up pattern. The word “chip” is used to make the claim read better, chip was used in the original abstract and no new matter is added.

None of the references cited or others are known provide this conversion of the orientation to allow a die-down chip to be mounted in a die-up package as the present invention so provides.

Claim 1 and 15 distinguish the cited references and are now allowable. The other claims are dependent and therefore allowable.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

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